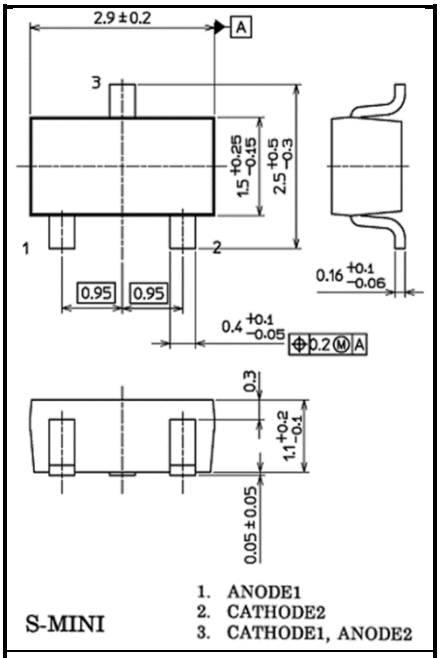
TOSHIBA Diode Silicon Epitaxial Planar Type

1SS398

Unit: mm

High-Voltage, High-Speed Switching Applications

- Small package : SC-59
- Low forward voltage : $V_{F(2)}$ = 1.0 V (typ.)
- Fast reverse recovery time : t_{rr} = 0.5 μs (typ.)
- Small total capacitance : C_T = 2.5 pF (typ.)



JEDEC	TO-236MOD
JEITA	SC-59
TOSHIBA	2-3F1S

Weight: 12 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse Voltage	V_{RM}	420	V
Reverse voltage	V_R	400	V
Maximum (peak) forward current	I_{FM}	300 *	mA
Average forward current	I_O	100 *	mA
Surge current (10ms)	I_{FSM}	2 *	A
Power dissipation	P_D (Note 1, 3)	200	mW
	P_D (Note 2)	150	
Junction temperature	T_j (Note 1)	150	°C
	T_j (Note 2)	125	
Storage temperature range	T_{stg} (Note 1)	−55 to 150	°C
	T_{stg} (Note 2)	−55 to 125	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: For devices with the ordering part number ending in LF(T.
Note 2: For devices with the ordering part number in other than LF(T.
Note 3: Mounted on a FR4 board. (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.8 mm^2 × 3)

*: Unit rating. Total rating = unit rating × 0.7

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F\ (1)}$	I_F = 10 mA	—	0.8	—	V
	$V_{F\ (2)}$	I_F = 100 mA	—	1.0	1.3	
Reverse current	$I_{R\ (1)}$	V_R = 300 V	—	—	0.05	μA
	$I_{R\ (2)}$	V_R = 400 V	—	—	0.1	
Total capacitance	C_T	V_R = 0 V, f = 1 MHz	—	2.5	5.0	pF
Reverse recovery time	t_{rr}	I_F = 10 mA (Fig.1)	—	0.5	—	μs

Start of commercial production
1995-10

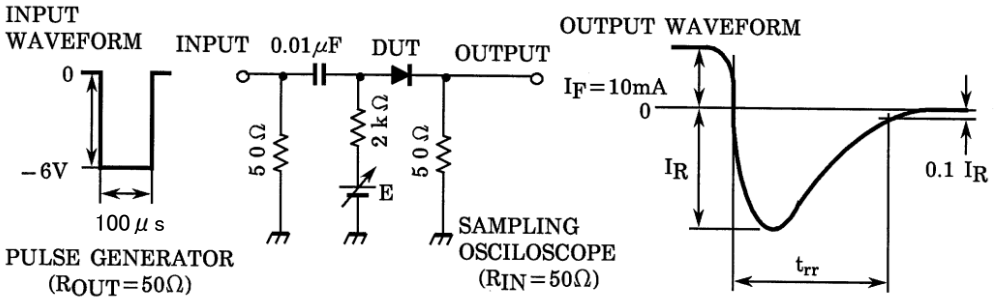
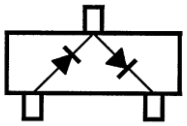
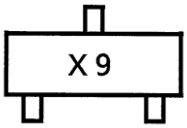


Fig.1 Reverse recovery time (t_{rr}) test circuit

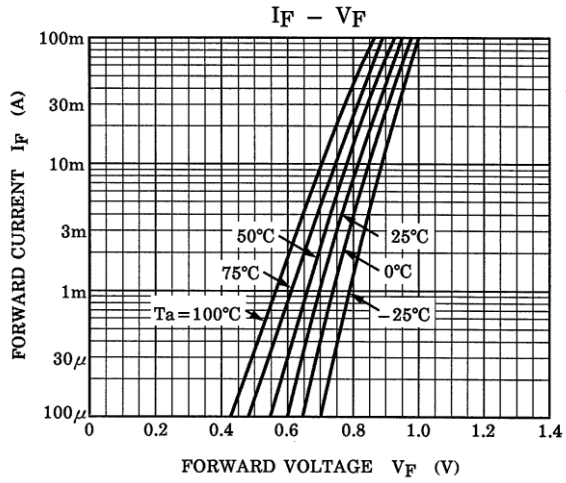
Equivalent Circuit (Top View)

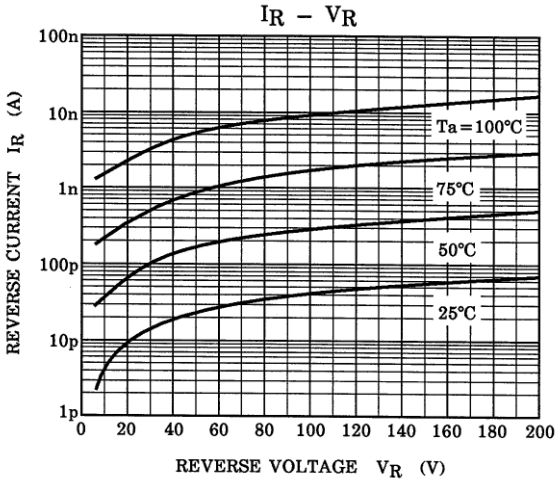


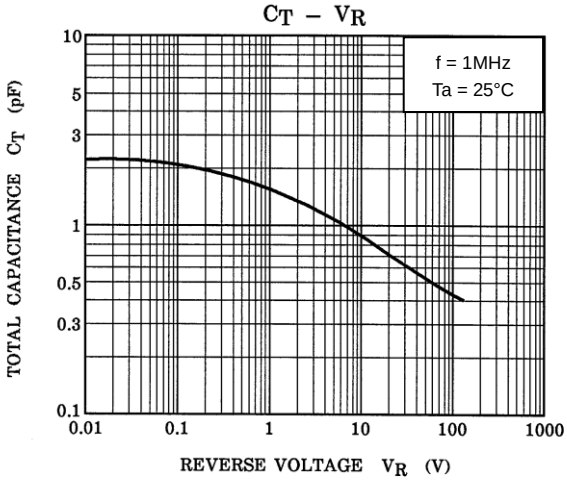
Marking

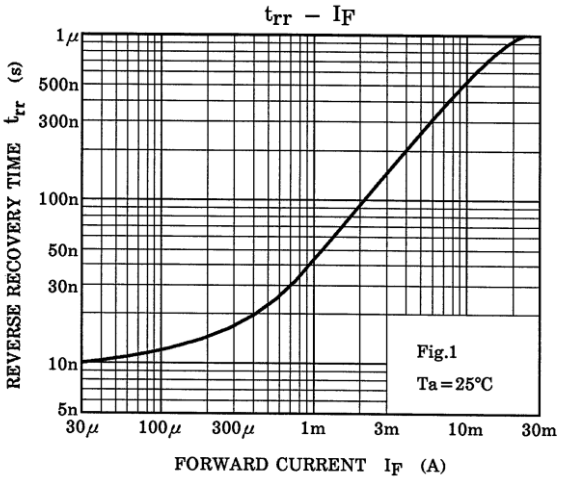


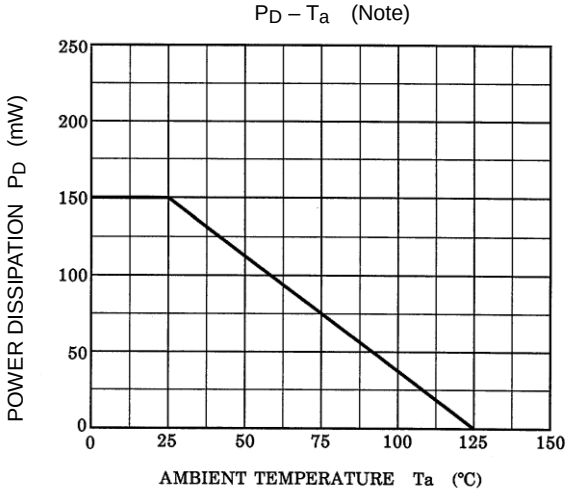
Characteristics Curves



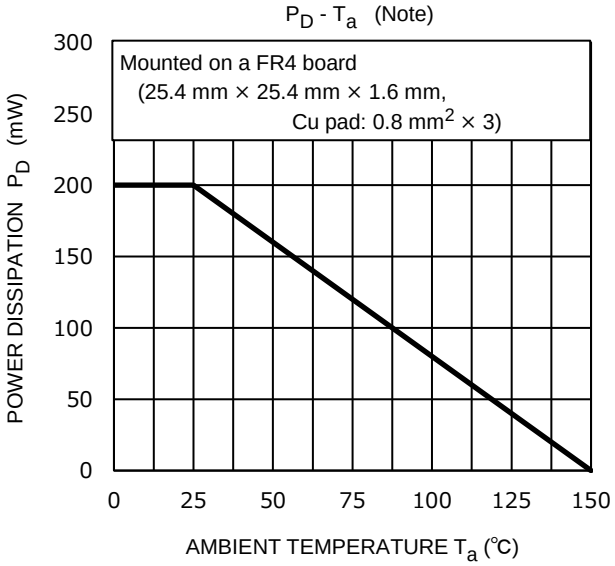








Note: Reference only with T_j of 125 °C.



Note: Reference only with T_j of 150 °C.

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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